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EXAMINER	
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Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary	Application No.	Applicant(s)	
	09/803,838	SHIRATA ET AL.	
	Examiner	Art Unit	
	Paulos M. Natnael	2614	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1)☒ Responsive to communication(s) filed on *29 April 2004*.

2a)☐ This action is **FINAL**. 2b)☒ This action is non-final.

3)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4)☒ Claim(s) *1-44* is/are pending in the application.

4a) Of the above claim(s) _____ is/are withdrawn from consideration.

5)☐ Claim(s) _____ is/are allowed.

6)☒ Claim(s) *1-44* is/are rejected.

7)☐ Claim(s) _____ is/are objected to.

8)☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

9)☐ The specification is objected to by the Examiner.

10)☐ The drawing(s) filed on _____ is/are: a)☐ accepted or b)☐ objected to by the Examiner.

Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).

11)☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

12)☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

a)☐ All b)☐ Some * c)☐ None of:

1.☐ Certified copies of the priority documents have been received.

2.☐ Certified copies of the priority documents have been received in Application No. _____.

3.☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

1) ☐ Notice of References Cited (PTO-892)
2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3) ☐ Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08) Paper No(s)/Mail Date _____.
4) ☐ Interview Summary (PTO-413) Paper No(s)/Mail Date. _____.
5) ☐ Notice of Informal Patent Application (PTO-152)
6) ☐ Other: _____.

DETAILED ACTION

Claim Rejections - 35 USC § 103

1. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

> (a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negatived by the manner in which the invention was made.

2. Claims **1-3,5-6,9, 10, 17, 27-36,39, and 40** are rejected under 35 U.S.C. 103(a) as being unpatentable over Wagensonner et al. U.S. Pat. No. 4,812,903.

Considering claim **1**, Wagensonner discloses the following claimed subject matter, note; a) the claimed dividing an input data region representative of a range of digital luminance data into a plurality of regions comprising substantially all of said input data region, is met by regions 31, 32 and 33, Fig. 7; (see also col. 2, lines 32-35)

c) correcting digital luminance data in accordance with said selected output data correction characteristic, is met by the trapezoidal characteristic formed by the regions or areas 31,32,and 33, FIG.7; (see also fig. 8)

d) wherein said plurality of output data correction characteristics are based on characteristics of a video source, characteristics of an image display device and visual characteristics

Except for;

b) selecting one of a plurality of output data correction characteristics, each of said plurality of output data correction characteristics being non-linear as a whole, but comprising a linear portion coextensive with each of said plurality of regions and having different slopes in at least two of said regions;

Regarding b), Wagensonner does not specifically disclose a selecting means or method. However, Wagensonner discloses regions 31,32, and 33 which are non-linear taken as a whole, but have a linear portion each having different slope in Fig.7 which form the trapezoidal correction characteristic. In fig. 8, Wagensonner discloses an S-shaped correction characteristic. It would be obvious that a system or a user would desire to select one correction characteristic and the other correction characteristic on another occasion. Therefore, it would have been obvious to the skilled in the art at the time the invention was made to modify the system of Wagensonner by providing a selecting method or means to select one of the correction characteristics so that the desired correction would be made correctly.

Regarding d), Wagensonner discloses a method of electronically improving the sharpness and contrast of a color image. Wagensonner teaches color saturation correction, contrast evaluation and adjustment, etc., using the circuit in Fig.5. Wagensonner teaches that color saturation correction for relatively dark areas of the original would appear to be excessively saturated and the relatively light areas of the image would appear to be desaturated, if color saturation correction is not performed

accurately. This obviously is a display characteristic or a human visual characteristic because it depends on the perception of the human observation of the displayed image. Therefore, it would have been obvious to the skilled in the art at the time the invention was made to modify the reference of Wagensonner by providing correction characteristics based on the image source, display device and the human visual characteristic which Wagensonner suggests, in order for the output data to be corrected according to the desired output signal.

Considering claim **2**, a video processing method comprising the steps of:
a) dividing an input data region representative of a range of digital color difference data into plurality of regions comprising substantially all of said input data region, is met by regions 31-33, fig.7;

c) executing gain control or hue control with regard to digital color difference data or other digital color data, is met by FIG. 9 which shows characteristic functions for color difference signals U and V.

d) wherein said plurality of output data correction characteristics are based on characteristics of a video source, characteristics of an image display device and visual characteristics

Except for;

b) selecting one of a plurality of output data correction characteristics, each of said plurality of output data correction characteristics being non-linear as a whole, but comprising a linear portion coextensive with each of said plurality of regions and having different slopes in at least two of said regions;

Regarding b), see rejection of claim 1(b)

Regarding d), see rejection of claim 1(d).

Considering claim **3**, a video processing method comprising the steps of

a) dividing an input data region representative of a range of digital color difference data into plurality of regions comprising substantially all of said input data region, is met by regions 31-33, fig.7;

c) separating luminance data and color difference data from digital video data which are composed of the luminance data and the color difference data combined to be multiplex, is met by the luminance and chrominance generating unit 13;

d) executing gain control or hue control with regard to digital color difference data or other digital color data, is met by FIG. 9 which shows characteristic functions for color difference signals U and V.

e) wherein said plurality of output data correction characteristics are based on characteristics of a video source, characteristics of an image display device and visual characteristics

Except for;

b) selecting one of a plurality of output data correction characteristics, each of said plurality of output data correction characteristics being non-linear as a whole, but comprising a linear portion coextensive with each of said plurality of regions and having different slopes in at least two of said regions;

Regarding b) see rejection of claim 1(b).

Regarding e), see rejection of claim 1(d).

Considering claim **5**, a video processing method comprising the steps of

a) dividing an input data region representative of a range of digital color difference data into plurality of regions comprising substantially all of said input data region,

b) selecting one of a plurality of output data correction characteristics, each of said plurality of output data correction characteristics being non-linear as a whole, but comprising a linear portion coextensive with each of said plurality of regions and having different slopes in at least two of said ;

c) wherein at least one of said output data characteristic is a trapezoidal characteristic which is nonlinear and continuous as a whole and consists of a linear portion in first region where the gain is greater than one, a linear portion in second region where the gain is equal to one exactly or approximately, and a linear portion in said third region where the gain is smaller than one, and one of said plurality of output data correction characteristics is an S-shaped characteristic which is nonlinear and continuous as a

whole and consists of linear portions in said first and third regions where the gain is smaller than one, and a linear portion in said second region where the gain is greater than one;

d) correcting the digital luminance data in accordance with the selected characteristic;

e) executing gain control or hue control with regard to digital color difference data or other digital color data.

f) wherein said plurality of output data correction characteristics are based on characteristics of a video source, characteristics of an image display device and visual characteristics

Regarding a)-d), see rejection of claim 3;

Regarding f), see rejection of claim 1 (d) above

Considering claim **6**, a video processing method comprising the steps of:

a) dividing an input data region representative of a range of digital color difference data into plurality of regions comprising substantially all of said input data region, , is met by regions 31-33, fig.7;

c) separating luminance data and color difference data from digital video data which are composed of the luminance data and the color difference data combined to be multiplexed, is met by the Luminance and chrominance generating unit 13, fig.1;

d) wherein at least one of said output data characteristic is trapezoidal characteristic which is nonlinear and continuous as a whole and consists of a linear portion in said first region where the gain is greater than one, a linear portion in said second region where the gain is equal to one exactly or approximately, and a linear portion in said third region where the gain is smaller than one , and one of said plurality of output data correction characteristics is S-shaped characteristic which is nonlinear and continuous as a whole and consists of linear portions in said first and third regions where the gain is smaller than one, and a linear portion in said second region where the gain is greater than one;

e) correcting the separated luminance data in accordance with the selected output data correction characteristic, is met by the trapezoidal characteristic formed by the regions or areas of 31, 32, and 33, FIG.7; (see also fig. 8)

f) executing gain control or hue control with regard to the separated color difference data, is met by FIG. 9 which shows characteristic functions for color difference signals U and V.

g) wherein said plurality of output data correction characteristics are based on characteristics of a video source, characteristics of an image display device and visual characteristics;

Except for;

b) selecting one of a plurality of output data correction characteristics, each of said plurality of output data correction characteristics being non-linear as a whole, but

comprising a linear portion coextensive with each of said plurality of regions and having different slopes in at least two of said regions;

Regarding b), see rejection of claim 1(b)

Regarding d), see rejection of claim 1 (d).

Regarding f), see rejection of claim 1 (d) above.

Considering claim **9**, Wagensonner discloses all claimed subject matter, note;

a) a component generator for generating components including post-correction output luminance data in first, second and third regions from pre-correction input luminance data and data which determine the boundary value between the first and second regions and the boundary value between the second and third regions, is met by luminance and chrominance generating unit 13, fig.5.

b) a selective compositor for selecting the components generated by said component generator in response to signals for identifying the first, second and third regions, and producing post-correction output luminance data over the entire regions of the input luminance data, is met by luminance and chrominance converting unit 16, fig.5;

c) wherein said plurality of output data correction characteristics are based on characteristics of a video source, characteristics of an image display device and visual characteristics;

Regarding c), see rejection of claim 1 (d) above.

Considering claim **10**, a video processing device comprising:

a) a data separator circuit for separating luminance data and color difference data from digital video data which are composed of the luminance data and the color difference data to be multiplexed, is met by luminance and chrominance generating unit 13, fig.5.

b) a luminance corrector circuit for correcting the luminance data separated by said data separator circuit, is met by luminance and chrominance converting unit 16, fig.5;

d) wherein said plurality of output data correction characteristics are based on characteristics of a video source, characteristics of an image display device and visual characteristics

Except for;

c) where the gain is equal to one exactly or approximately, and a linear portion in said third region where the gain is smaller than one;

Regarding c), see also rejection of claim 1(d).

Considering claim **17**, Wagensonner discloses all claimed subject matter, note;

a) a component generator for generating components including post-correction output luminance data in first, second and third regions from pre-correction input luminance data and data which determine the boundary value between the first and second regions and the boundary value between the second and third regions; and,

b) a selective compositor for selecting the components generated by said component generator in response to signals for identifying the first, second and third regions, and

producing post-correction output luminance data over the input data region of the input luminance data;

c) wherein said plurality of output data correction characteristics are based on characteristics of a video source, characteristics of an image display device and visual characteristics;

Regarding claim 17, see rejection of claim 9.

Considering claim **27**, (New) the video processing method according to claim 1, wherein said selected output data correction characteristic is a trapezoidal characteristic which is nonlinear and continuous as a whole and consists of a linear portion in said first region where the gain is greater than one, a linear portion in said second region where the gain is equal to one exactly or approximately, and a linear portion in said third region where the gain is smaller than one, is met Fig.7 which shows trapezoidal characteristics. (see also col. 10, lines 16-35 and 64 through col. 11, 11)

Considering claim 28. (New) The video processing method according to claim 1, wherein said selected output data correction characteristic is an S-shaped characteristic which is nonlinear and continuous as a whole and consists of a linear portion in said first region where the gain is greater than one, a linear portion in said second region where the gain is equal to one exactly or approximately, and a linear portion in said third region

where the gain is smaller than one, is met by the S-shaped characteristic in Fig. 8. (see also col. 12, lines 30-43)

Considering claim **29**. (New) The video processing method according to claim 2, wherein said selected output data correction characteristic is a trapezoidal characteristic which is nonlinear and continuous as a whole and consists of a linear portion in a first region where the gain is greater than one, a linear portion in a second region where the gain is equal to one exactly or approximately, and a linear portion in a third region where the gain is smaller than one, is met Fig.7 which shows trapezoidal characteristics. (see also col. 10, lines 16-35 and 64 through col. 11, 11)

Considering claim **30,** (New) The video processing method according to claim 2, wherein said selected output data correction characteristic is an S-shaped characteristic which is nonlinear and continuous as a whole and consists of a linear portion in a first region where the gain is greater than one, a linear portion in a second region where the gain is equal to one exactly or approximately, and a linear portion in a third region where the gain is smaller than one.

Regarding claim 30, see rejection of claim 28.

Considering claim 31, (New) The video processing method according to claim 3, wherein said selected output data correction characteristic is a trapezoidal characteristic which is nonlinear and continuous as a whole and consists of a linear portion in a first

region where the gain is greater than one, a linear portion in a second region where the gain is equal to one exactly or approximately, and a linear portion in a third region where the gain is smaller than one. is met Fig.7 which shows trapezoidal characteristics. (see also col. 10, lines 16-35 and 64 through col. 11, 11)

Considering claim **32**, (New) The video processing method according to claim 3, wherein said selected output data correction characteristic is an S-shaped characteristic which is nonlinear and continuous as a whole and consists of a linear portion in a first region where the gain is greater than one, a linear portion in a second region where the gain is equal to one exactly or approximately, and a linear portion in a third region where the gain is smaller than one, is met by Fig.8;

Considering claim **33**, (New) The video processing device according to claim 9, wherein said selected output data correction characteristic is a trapezoidal characteristic which is nonlinear and continuous as a whole and consists of a linear portion in a first region where the gain is greater than one, a linear portion in a second region where the gain is equal to one exactly or approximately, and a linear portion in a third region where the gain is smaller than one.

See rejection of claim 27;

Considering claim **34**, (New) The video processing device according to claim 9, wherein said selected output data correction characteristic is an S shaped characteristic

which is nonlinear and continuous as a whole and consists of a linear portion in a first region where the gain is greater than one, a linear portion in a second region where the gain is equal to one exactly or approximately, and a linear portion in a third region where the gain is smaller than one, is met by Fig.8;

Considering claim **35**, (New) The video processing device according to claim 10, wherein said selected output data correction characteristic is a trapezoidal characteristic which is nonlinear and continuous as a whole and consists of a linear portion in a first region where the gain is greater than one, a linear portion in a second region where the gain is equal to one exactly or approximately, and a linear portion in a third region where the gain is smaller than one is met Fig.7 which shows trapezoidal characteristics. (see also col. 10, lines 16-35 and 64 through col. 11, 11)

Considering claim **36**, (New) The video processing device according to claim 10, wherein said selected output data correction characteristic is an S-shaped characteristic which is nonlinear and continuous as a whole and consists of a linear portion in a first region where the gain is greater than one, a linear portion in a second region where the gain is equal to one exactly or approximately, and a linear portion in a third region where the gain is smaller than one, is met by Fig.8;

Considering claim **39**, (New) The video processing appliance according to claim 17, wherein said selected output data correction characteristic is a trapezoidal characteristic

which is nonlinear and continuous as a whole and consists of a linear portion in a first region where the gain is greater than one, a linear portion in a second region where the gain is equal to one exactly or approximately, and a linear portion in a third region where the gain is smaller than one, is met Fig.7 which shows trapezoidal characteristics. (see also col. 10, lines 16-35 and 64 through col. 11, 11)

Considering claim **40**, (New) The video processing appliance according to claim 17, wherein said selected output data correction characteristic is an S shaped characteristic which is nonlinear and continuous as a whole and consists of a linear portion in a first region where the gain is greater than one, a linear portion in a second region where the gain is equal to one exactly or approximately, and a linear portion in a third region where the gain is smaller than one, is met by Fig.8;

3. Claims **4, 7-8, 11-12,14-16,18-21,37-38, and 41-44** are rejected under 35 U.S.C. 103(a) as being unpatentable over Wagensonner et al. U.S. Pat. No. 4,812,903 in view of Lee, U.S. Pat. No. 5,546,134.

Considering claim **4, a** video processing method comprising the steps of
a) dividing an input data region representative of a range of digital luminance data into a plurality of regions comprising substantially all of said input data region, is met by regions 31, 32 and 33, Fig. 7; (see also col. 2, lines 32-35)

c) wherein at least one of said, output data characteristic is a trapezoidal characteristic which is nonlinear and continuous as a whole and consists of a linear portion in said first region where the gain is greater than one, a linear portion in said second region where the gain is equal to one exactly or approximately, and a linear portion in said third region where the gain is smaller than one, is met by the trapezoidal characteristic formed by the regions or areas 31,32,and 33, FIG.7;

d) correcting digital luminance data in accordance with the selected characteristic, is met by the trapezoidal characteristic formed by the regions or areas 31,32,and 33, FIG.7;

f) wherein said plurality of output data correction characteristics are based on characteristics of a video source, characteristics of an image display device and visual characteristics

Except for;

b) selecting one of a plurality of output data correction characteristics, each of said plurality of output data correction characteristics being non-linear as a whole, but comprising a linear portion coextensive with each of said plurality of regions and having different slopes in at least two of said;

c) wherein one of said output data characteristic is an S-shaped characteristic 'which is nonlinear and continuous as a whole and consists of linear portions in said first and third

regions where the gain is smaller than one, and a linear portion in said second region where the gain is greater than one;

Regarding b), Wagensonner does not specifically disclose a selecting means or method. However, Wagensonner discloses regions 31,32, and 33 which are non-linear taken as a whole, but have a linear portion each having different slope in Fig.7 which form the trapezoidal correction characteristic. In fig. 8, Wagensonner discloses an S-shaped correction characteristic. It would be obvious that a system or a user would desire to select one correction characteristic and the other correction characteristic on another occasion. Therefore, it would have been obvious to the skilled in the art at the time the invention was made to modify the system of Wagensonner by providing a selecting method or means to select one of the correction characteristic so that the desired correction would be made correctly.

Regarding c), Wagensonner et al. do not disclose the s-shaped characteristic. However the s-shaped nonlinear characteristic is well known in the art. In that regard, Lee discloses a video brightness/contrast enhancement in input-output characteristics (fig.3) and dividing a range of the average brightness level in a video input signal into a plurality of areas (fig.4, see also col. 2, lines 32-35). Therefore, it would have been obvious to the skilled in the art at the time the invention was made to modify the system of Wagensonner by providing an S-shaped characteristic (fig.3) of Lee, in order to give the user a greater flexibility of choice to utilize either the trapezoidal or s-shaped methods.

Regarding f), Wagensonner discloses a method of electronically improving the sharpness and contrast of a color image. Wagensonner teaches color saturation correction, contrast evaluation and adjustment, etc., using the circuit in Fig.5. Wagensonner teaches that color saturation correction for relatively dark areas of the original would appear to be excessively saturated and the relatively light areas of the image would appear to be desaturated, if color saturation correction is not performed accurately. This obviously is a display characteristic or a human visual characteristic because it depends on the perception of the human observation of the display image. Therefore, it would have been obvious to the skilled in the art at the time the invention was made to modify the reference of Wagensonner by providing correction characteristics based on the image source, display device and the human visual characteristic which Wagensonner suggests, in order for the output data to be corrected according to the desired output signal.

Considering claim **7**, the video processing method according to claim 1, wherein said selected output data correction characteristic equalizes the width of the first region and that of the third region to each other, is met by the first and third regions (figs. 7 and 8)

Considering claim 8, the video processing method according to claim 4, wherein said selected output data correction characteristic equalizes the sum of the widths of the first and third regions to the width of the second region.

Regarding claim 8, see rejection of claim 4.

Considering claim **11**, a video processing device comprising:

a) a data separator circuit for separating luminance data and color difference data from digital video data which are composed of the luminance data and the color difference data to be multiplexed, is met by luminance and chrominance generating unit 13, fig.5.

b) a luminance corrector circuit for correcting the luminance data separated by said data separator circuit, wherein one of said plurality of output data correction characteristics is a trapezoidal characteristic which is nonlinear and continuous as a whole and consists of a linear portion in said first region, ... is met by luminance and chrominance converting unit 16, fig.5;

Except for;

c) where the gain is greater than one, a linear portion in said second region where the gain is equal to one exactly or approximately, and a linear portion in said third region where the gain is smaller than one;

d) one of said plurality of output data correction characteristics is a S-shaped characteristic which is nonlinear and continuous as a whole and consists of linear portions in said first and third regions where the gain is smaller than one, and a linear portion in said second region where the gain is greater than one.

Regarding c), Wagensonner et al doesn't specifically disclose a value such as one (1) or one and half (1.5). However, Wagensonner discloses that the regions or areas

31,32,and 33, FIG.7, show greater gain in the first region (31), than either the second, and the third region, which shows little gain. The third region would be a zero gain. Therefore, it would have been obvious to the skilled in the art at the time the invention was made to modify the system of Wagensonner et al. by providing specific gain values in order to make clear to the user or to accurately set up the system for luminance correction and measure the gain thereof accurately.

Regarding d), see rejection of claim 4 (c);

Considering claim **12**, a video processing device comprising:

a) a data separator circuit for separating luminance data and color difference data from digital video data which are composed of the luminance data and the color difference data to be multiplexed, is met by luminance and chrominance generating unit 13, fig.5.

b) a luminance corrector circuit for correcting the luminance data separated by said data separator circuit, ... is met by luminance and chrominance converting unit 16, fig.5;

c) a control processing circuit for executing gain control or hue control with regard to the color difference data separated by said data separator circuit.

d) wherein said plurality of output data correction characteristics are based on characteristics of a video source, characteristics of an image display device and visual characteristics

Regarding (c), see rejection of claim 11(c).

Considering claim **14**, the video processing device according to claim 10, further comprising a data compositor circuit for compositing the output luminance data of said luminance corrector circuit and the output color difference data of said data separator circuit or said control processing circuit, is met by luminance and chrominance converting unit 16, fig.5;

Considering claim **15**, a data compositor circuit for compositing the output luminance data of said luminance corrector circuit and the output color difference data of said data separator circuit or said control processing circuit, is met by the luminance and chrominance converting unit 16, fig.5;

Considering claim **16**, a data compositor circuit for compositing the output luminance data of said luminance corrector circuit and the output color difference data of said data separator circuit or said control processing circuit.

Regarding claim 16, see rejection of claim 15.

Considering claim **18**,

a) a data separator circuit for separating luminance data and color difference data from digital video data which are composed of the luminance data and the color difference data combined 'to be multiplex; and

b) a luminance corrector circuit for correcting the luminance data separated by said data separator circuit;

Regarding claim 18, see rejection of claim 13;

Considering claim **19**,

a) a data separator circuit for separating luminance data and color difference data from digital video data which are composed of the luminance data and the color difference data to be multiplexed; and

b) a luminance corrector circuit for correcting the luminance data separated by said data separator circuit, wherein one of said plurality of output data correction characteristics is a trapezoidal characteristic which is nonlinear and continuous as a whole and consists of a linear portion in said first region where the gain is greater than one, a linear portion in said second region where the gain is equal to one exactly or approximately, and a linear portion in said third region where the gain is smaller than one and one of said plurality of output data correction characteristics is a S-shaped characteristic which is nonlinear and continuous as a whole and consists of linear portions in said first and third regions where the gain is smaller than one, and a linear portion in said second region where the gain is greater than one.

c) wherein said plurality of output data correction characteristics are based on characteristics of a video source, characteristics of an image display device and visual characteristics;

Regarding claim 19 (a and b), see rejection of claim 13; (see also col. 10, lines 15-36, lines 56 through col. 11, line11)

As for 19 (c), see rejection of claim 4 (f).

Considering claim **20,**

a) a data separator circuit for separating luminance data and color difference data from digital video data which are composed of the luminance data and the color difference data combined to be multiplex; b)a luminance corrector circuit for correcting the luminance data separated by said data separator circuit; c) and a control processing circuit for executing gain control or hue control with regard to the color difference data separated by said data separator circuit.

d) wherein said plurality of output data correction characteristics are based on characteristics of a video source, characteristics of an image display device and visual characteristics

Regarding claim 20 (a-c), see rejection of claim 13;

As for 20 (d), see rejection of claim 4 (f).

Considering claim **21**, Wagensonner et al discloses the following claimed subject matter, note;

a) a data separator circuit for separating luminance data and color difference data from digital video data which are composed of the luminance data and the color difference data to be multiplexed;

b) a luminance corrector circuit for correcting the luminance data separated by said data separator circuit, wherein one of said plurality of output data correction characteristics is a the trapezoidal characteristic which is nonlinear and continuous as a whole and consists of a linear portion in said first region where the gain is greater than one, a linear portion in said second region where the gain is equal to one exactly or approximately, and a linear portion in said third region where the gain is smaller than one, and one of said plurality of output data correction characteristics is a S-shaped. characteristic which is nonlinear and continuous as a whole and consists of linear portions in said first and third regions where the gain is smaller than one, and a linear portion in said second region where the gain is greater than one; and

a control processing circuit for executing gain control or hue control with regard to the color difference data separated by said data separator circuit.

c) wherein said plurality of output data correction characteristics are based on characteristics of a video source, characteristics of an image display device and visual characteristics

Regarding claim 21, see rejection of claim 13;

As for c) see rejection of claim 4 (f).

Considering claim **37**, (New) The video processing device according to claim 12, wherein said selected output data correction characteristic is a trapezoidal characteristic which is nonlinear and continuous as a whole and consists of a linear portion in a first region where the gain is greater than one, a linear portion in a second region where the gain is equal to one exactly or approximately, and a linear portion in a third region where the gain is smaller than one, is met Fig.7 which shows trapezoidal characteristics. (see also col. 10, lines 16-35 and 64 through col. 11, 11)

Considering claim **38**, (New) The video processing device according to claim 12, wherein said selected output data correction characteristic is an S-shaped characteristic which is nonlinear and continuous as a whole and consists of a linear portion in a first region where the gain is greater than one, a linear portion in a second region where the gain is equal to one exactly or approximately, and a linear portion in a third region where the gain is smaller than one, is met by Fig.8;

Considering claim **41**, (New) The video processing appliance according to claim 18, wherein said selected output data correction characteristic is a trapezoidal characteristic which is nonlinear and continuous as a whole and consists of a linear portion in a first region where the gain is greater than one, a linear portion in a second region where the gain is equal to one exactly or approximately, and a linear portion in a third region

where the gain is smaller than one, is met Fig.7 which shows trapezoidal characteristics. (see also col. 10, lines 16-35 and 64 through col. 11, 11)

Considering claim **42**, (New) The video processing appliance according to claim 18, wherein said selected output data correction characteristic is an S-shaped characteristic which is nonlinear and continuous as a whole and consists of a linear portion in a .first region where the gain is greater than one, a linear portion in a second region where the gain is equal to one exactly or approximately, and a linear portion in a third region where the gain is smaller than one, is met by Fig.8;

Considering claim **43**, (New) The video processing appliance according to claim 20, wherein said selected output data correction characteristic is a trapezoidal characteristic which is nonlinear and continuous as a whole and consists of a linear portion in a first region where the gain is greater than one, a linear portion in a second region where the gain is equal to one exactly or approximately, and a linear portion in a third region where the gain is smaller than one, is met by Fig.7 which shows trapezoidal characteristics and three distinct regions of 31,32 and 33. (see also col. 10, lines 16-35 and 64 through col. 11, line 11)

Considering claim **44**, the video processing appliance according to claim 20, wherein said selected output data correction characteristic is an S-shaped characteristic which is nonlinear and continuous as a whole and consists of a linear portion in a first region

where the gain is greater than one, a linear portion in a second region where the gain is equal to one exactly or approximately, and a linear portion in a third region where the gain is smaller than one.

Regarding claim 44, see rejection of claim 28;

4. Claims **13, 22-26** are rejected under 35 U.S.C. 103(a) as being unpatentable over **Wagensonner** et al. U.S. Pat. No. 4,812,903 in view of **Lee**, U.S. Pat. No. 5,546,134 further in view of **Kohler**, U.S. Patent no. 5,615,312.

Considering claim **13**, Wagensonner et al discloses the following claimed subject matter, note;

a) a data separator circuit for separating luminance data and color difference data from digital video data which are composed of the luminance data and the color difference data to be multiplexed;

b) a luminance corrector circuit for correcting the luminance data separated by said data separator circuit, wherein one of said plurality of output data correction characteristics is a trapezoidal characteristic which is nonlinear and continuous as a whole and consists of a linear portion in said first region where the gain is greater than one, a linear portion in said second region where the gain is equal to one exactly or approximately, and a linear portion in said third region where the gain is smaller than one, ... is met by luminance and chrominance converting unit 16, fig.5;

c) and one of said plurality of output data correction characteristics is a S-shaped characteristic which is nonlinear and continuous as a whole and consists of linear portions in said first and third regions where the gain is smaller than one, and a linear portion in said second region where the gain is greater than one;

d) a control processing circuit for executing gain control or hue control with regard to the color difference data separated by said data separator circuit,

e) wherein said plurality of output data correction characteristics are based on characteristics of a video source, characteristics of an image display device and visual characteristics;

Regarding c), see rejection of claim 4(c).

Regarding d), Wagensonner et al. and lee as modified above does not specifically disclose a controller. However, controllers are notoriously well known in the art. In that regard, Kohler discloses a color management system having business graphics rendering mode showing input ink amount in Fig.10 (a) comprising system 20 fig.4 that has a microprocessor unit (CPU) at the heart of it operating as a controller that controls the overall operation of the system. Therefore, it would have been obvious to the skilled in the art at the time the invention was to modify the system of Wagensonner et al. by providing the CPU of Kohler to send control signals for writing to and reading from the

memory 5 and generally control the overall function of the system, so that the system functions reliably.

Regarding e), Wagensonner discloses a method of electronically improving the sharpness and contrast of a color image. Wagensonner teaches color saturation correction, contrast evaluation and adjustment, etc., using the circuit in Fig.5. Wagensonner teaches that color saturation correction for relatively dark areas of the original would appear to be excessively saturated and the relatively light areas of the image would appear to be desaturated, if color saturation correction is not performed accurately. This obviously is a display characteristic or a human visual characteristic because it depends on the perception of the human observation of the display image. Therefore, it would have been obvious to the skilled in the art at the time the invention was made to modify the reference of Wagensonner by providing correction characteristics based on the image source, display device and the human visual characteristic which Wagensonner suggests, in order for the output data to be corrected according to the desired output signal.

Considering claim **22**,

a) a memory capable of holding the stored content without any power supply or with a backup power supply, is met by memory 5, fig.1;

Except for;

b) a controller for writing a control state relative to video data as a control parameter in said memory correspondingly to video identification information which specifies the

video, or to characteristic descriptive information which describes the image characteristic, wherein, when the video data are to be outputted, said controller reads out the control parameter from said memory if the video identification information or the characteristic descriptive information relative to the output video data is stored in said memory and also if the control parameter corresponding to such information is stored therein, and said controller sets the control state for the output video data in accordance with the control parameter thus read out.

Regarding b), the combination of Wagensonner et al. and lee as modified above does not specifically disclose a controller. However, controllers are notoriously well known in the art. In that regard, Kohler discloses a color management system having business graphics rendering mode showing input ink amount in Fig.10 (a) comprising system 20 fig.4 that has a microprocessor unit (CPU) at the heart of it operating as a controller that controls the overall operation of the system. Therefore, it would have been obvious to the skilled in the art at the time the invention was to modify the system of Wagensonner et al. by providing the CPU of Kohler to send control signals for writing to and reading from the memory 5 and generally control the overall function of the system, so that the system functions reliably.

Considering claim **23**, see rejection of claim 22.

Considering claim **24**, see rejection of claim 22.

Considering claim **25**, see rejection of claim 22.

Considering claim **26**, see rejection of claim 22.

Response to Arguments

Applicant's Arguments

a) Wagensonnner does not suggest or teach a plurality of output data correction characteristics that are based on characteristics of a video source, characteristics of an image display device and visual characteristics. Wagensonner merely discloses Look-Up-Tables for a color matrixing unit 10...that are only associated with brightness levels. In other words, the data correction characteristics are independent of input/output devices and function only based on known relationships, such as a luminance-chrominance relationship. ...

b) In contrast, in the present invention, the correction characteristics are based on hardware, such as the digital video source or the type of display. Therefore, the present invention compensates for the different hardware that can be utilized for various applications.

Examiner's Response

a) Wagensonner discloses a method of electronically improving the sharpness and contrast of a color image. Wagensonner teaches color saturation correction, contrast

evaluation and adjustment, etc., using the circuit in Fig.5. Wagensonner teaches that color saturation correction for relatively dark areas of the original would appear to be excessively saturated and the relatively light areas of the image would appear to be desaturated, if color saturation correction is not performed accurately. This obviously is a display characteristic or a human visual characteristic because it depends on the perception of the human observation of the displayed image, and/or even the performance of the display device itself. Therefore, the correction method and system of Wagensonner takes account of the input and output devices, and is independent of the input/output devices. Argument therefore is unpersuasive.

b) Applicant is arguing something that is not found in the claims. The claims do not recite that invention "compensates for the different hardware that can be utilized for various applications," unless of course this limitation is added into the claims.

Conclusion

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Paulos M. Natnael whose telephone number is (703) 305-0019. The examiner can normally be reached on 9:00am - 5:30pm.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, John Miller can be reached on (703) 305-4795. The fax phone number for the organization where this application or proceeding is assigned is 703-872-9306.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see http://pair-direct.uspto.gov. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

PMN
May 11, 2004

PAULOS M. NATNAEL
PATENT EXAMINER